

ABSTRACT

A system for efficient bit plane coding of transform coefficient data, such as DCT data used in a video coding system. Decimal values for the transform coefficients, e.g., in a block of several coefficients, are converted to binary values, where each bit occupies a corresponding bit plane, from the most significant bit to the least significant bit. One bit from each coefficient is provided in a common bit plane. A one-bit flag or codeword (such as "0") is used for coding one or more initial all-zero bit planes, while another one-bit flag (such as "1") is used for designating the first subsequent non-all-zero plane. For the first non-all-zero plane, a reduced coding table is used to provide codewords that follow the one-bit flag. The coding table is reduced in size since it does not require a special "all-zero" codeword. Additionally, the use of a one-bit flag for designating the initial all-zero bit planes reduces the required number of coding bits over prior art schemes that require multi-bit all-zero codewords. An encoder (200) includes a "0" codeword function (242), a "1" codeword function (244), a reduced table (246), and conventional tables (248). A corresponding decoder (400) includes a "0" codeword function (442), a "1" codeword function (444), a reduced table (446), and conventional tables (448).